

ABSTRACT

Systems and methods for scheduling coprocessing resources in a computing system are provided without redesigning the coprocessor. In various embodiments, a system of preemptive multitasking is provided achieving benefits over cooperative multitasking by any one or more of (1) executing rendering commands sent to the coprocessor in a different order than they were submitted by applications; (2) preempting the coprocessor during scheduling of non-interruptible hardware; (3) allowing user mode drivers to build work items using command buffers in a way that does not compromise security; (4) preparing DMA buffers for execution while the coprocessor is busy executing a previously prepared DMA buffer; (5) resuming interrupted DMA buffers; and (6) reducing the amount of memory needed to run translated DMA buffers.